

AMERICAN EDUCATIONAL MONTHLY.

SEPTEMBER, 1871.

SOME EXCUSE FOR DOUBTFUL READING.

THE sentimental proverb that one-half the world does not know how the other half lives, is but a fraction of the truth. There is no civilized society so democratic as not to be divided into an infinite number of ranks and classes, that mix but little with each other, and are more or less a mystery to each other, and do not even know themselves thoroughly ; and in which, consequently, gossip and the love of gossip, do not abound and constitute a good deal of the spice of life. We are disposed to think that few countries can pretend to such a variety of social shades, and such a paucity of types, as the United States. It must often, indeed, have fallen to the lot of intelligent Americans to be puzzled how to answer the questions of foreigners in regard to the usages of society in this country. The moment one undertakes to generalize, he perceives how limited his knowledge is, and cannot but be ; and, if honest, he ends by confessing that he can speak positively of the customs and modes of life of only his little circle of acquaintance ; and that other persons, as good as himself and his friends, as well to do, and as highly respected, may very probably take their dinners in the middle of the day, eat with their knives, flog their boys with a strap, wear black broad-cloth

all the year round, or receive their guests in dressing-gown and slippers.

A painful illustration of this limited knowledge of one's countrymen has probably struck every more decent American tourist in Europe. He there meets, on the main routes of travel or settled in "colonies" in the principal cities, a class whose existence he acknowledges for the first time with a blush, and who nevertheless are the most familiar and obtrusive, and often the sole representatives of America in the eyes of Continental nations. It is at such times that the British tourist is freely forgiven his disparaging account of men and manners in the New World, and that what seemed in him downright and malicious invention, wears a dreadful aspect of reality, on which the mind refuses to dwell. The simple truth is—and it is too frequently confirmed at sight of the official representatives of the United States abroad—our country is much too vast and too heterogeneous to be cognizable, in all its elements, by even the oldest, most experienced, and most imaginative native observer.

More or less consciously this inability comes home to all of us, and leads us to seek information from every source that promises to help us either to fix our own grade in society, or to satisfy our curiosity as to the grades above and below us. Undoubtedly some light on problems of this nature the published correspondence in the Crittenden-Fair murder case, the other day, was capable of shedding; and those who resorted to it for that purpose had as good an excuse as those who read *Lothair* to learn how dukes and marquises behave, or who go to the cartoons of *Vanity Fair* for some idea of the personal appearance of the world's notables. The acquisition thus made to our previous knowledge may be petty, but it is real, and able to afford real pleasure. Who reads, for instance, the love stories in *Harper's Monthly*? is not a very profound or important inquiry, but it is something to find Mr. Crittenden, in a jealous hour, writing to Mrs. Fair: "Have you read *Harper* for March, and the continuation of 'Armada'?" Apparently, Miss Ginwilt is going to reform and be good. Do you believe that love could have such a transforming power as to make her a

good, true, and faithful woman, devil as she has been for so long a time?" And that other question, as trivial, perhaps, but which will be asked—For whom is the "poetry column" of country newspapers edited?—receives one answer in the profusion of poetical extracts with which Mrs. Fair fastens her fetters upon her guilty lover. Those who draw deeper lessons from the same revelations, need not grudge others, equally innocent and pure-minded, this superficial gratification.

Philadelphians may know exactly the social stratum which fills the obituary columns of the *Public Ledger* with the tearfully ludicrous verses of consolation and piety for which they are famous. A stranger, on the spot, might with infinite pains and the help of the directory, acquire the same information in a few months or weeks. New Yorkers and all non-residents and non-visitors of Philadelphia whose curiosity has been piqued on the subject, may be driven to choose between wilful ignorance or reading the reports of a scandal case in the courts. It is a dilemma akin to that of the anatomists when called on to decide whether the human body or the pursuit of knowledge is the more sacred; and, as in their case, too great familiarity with the mysteries of the body often seems to breed a hardness and licentiousness of character, so it is not without risk, undoubtedly, that our social philosophers (to allow them that name, though they philosophize, as M. Jourdain spoke prose, without knowing it) search for a clew to their classifications in the filthy streams of our criminal procedure. And it must be confessed that their labor will not seldom be as fruitless, as well as unsavory, as that of the savants whom Gulliver met with, who sought to recover from the human excrement the food which had produced it. Their practice is one that may be defended, but, since we are not all philosophers, is hardly to be generally recommended.

P. CHAMITE.

THE Spectroscope will reveal the presence of blood which may be detected if there is only one drop in a pint of water. The one-thousandth of a grain of blood gives the characteristic spectrum.

CARE OF THE NERVES.

THE nerves are the telegraph of the mind, and the wires should be kept "up." They are the couriers of thought and will, and they should be well cared for. They are the cobwebs of the physical telescope through which the spirit surveys and measures matter, and they should not be deranged. But, too often, they are. To use the word "nervous" in the sense of fidgety, may indeed be, as Dr. Johnson says, mere "medical cant." But the word has acquired this sense, probably, from the prevalence of the condition which it is perverted to describe. The "Christianity" of the hour is "muscular;" devoting its apparatus to the straining of the red fibres of the human body rather than the white. We are like those early California Indians who admired the ore—the cinnabar—and used it to paint their altars, but missed the living metal—the quicksilver—which lay concealed within it. The counsels which ought to be observed, however, in connection with these delicate organs are chiefly negative. The most obvious of them relate to the use of stimulants. The nerves of youth are taut enough already, without making them more so by the use of liquor, or even by the excessive employment of tea, coffee, condiments and spices. Other cautions refer to the personal habits of teachers and parents. Teachers have been known to lose their scholars, and, in some cases, their situations, on account of fidgety tricks which their pupils were found to be mimicking. So, too, with certain practices calculated to derange the nerves. Locke says, for example, that in waking children great care should be taken that "it be not done hastily, nor with a loud or shrill voice, or any other sudden violent noise." And, in accordance with this, Montaigne's father caused him "to be waked by the sound of some musical instrument, and was never unprovided of a musician for that purpose." But the damage in this regard, done by older people, is small compared with the injuries which are inflicted by youngsters upon one another. Children should especially be warned against suddenly springing out upon one another, startling one ano-

ther with fire-arms, or striking any object with which the bodies of others are in contact. The trick of giving a violent blow to an iron rail upon which another lad has been induced to place his ear, as well as that of beating two rocks together under the water where a boy is diving, has caused permanent deafness. Older people should also take pains to correct certain nervous habits to which children are prone. Among these are biting the nails, picking the teeth without occasion, chewing odds and ends, moving about without object, and jumping and screaming at insects and small surprises. Indeed, in reference to insects and animals generally, children should be distinctly encouraged to take those that are innoxious into their hands and deal with them freely. In our cooler latitudes there are very few of either the insect or the reptile tribe that need be feared. Another suggestion of a positive nature in this connection, is that youngsters should be encouraged in certain games by which they are accustomed to try and make one another laugh, wink, and so forth. The victor in these is in a fair way to come off best in certain grander trials of nerve among full-grown men,

C. R. CLARKE.

MUSIC IN OUR SCHOOLS.

IT is a good sign of the times that the study of music is slowly creeping into our schools, and getting recognition by our teachers and school committees. Still the movement in this direction is very timid, halting, and feeble. It is so because many of our grown up people are, as a whole, insensible to the advantages of music. They either do not care for it or they secretly despise it. They think it a good enough thing, but they have no heart in the effort to exalt it and give it a universal distribution. I find in men, take them as they go, a great apathy on this subject. And I know not how it is to be reached, except by what may be called common sense argument, and appeals based on severely practical grounds. Two or three of these I will try to utter now and here.

The solution how we are, as a nation, to get rid of the nasal quality in our speech, which is at once our badge and our reproach, is found in the introduction of music into our schools. Our educators have asked and asked: How shall we get ourselves clear of this shrill, head-tone, which every man, woman, and child, among us has, and win to ourselves the full, resonant chest-tone of the Europeans? Every one knows the music there is in an Englishman's voice, and better still, in an English woman's voice. How shall we get it? Not from the teachers of our schools. They cannot impart what they have not. And even if they have it, they do not succeed in giving it out. There was Professor William Russell, who was for years brought into the most intimate relations with our teachers. We all remember his resonant chest-tones. What music there was in them! What a noble thing such a voice seemed to be! But few or none caught the magic charm from him. He found us nasal, he left us nasal, and nasal we are still. Is there a remedy, and if so, what is it, and where is it to be found? It has been discovered at last. It is in and through singing. The cultivation of singing among children, will give, it is proved, a rich, resonant chest-tone—will break up the shrill head-tone; will banish the nasal twang, and make our national speech melodious. To do this implies, of course, that the exercise of singing shall not be crowded into a mere fraction of the school session, but that, like reading and spelling, it be brought into the front, and made honorable. Practical men can understand the advantage of this; men who do not care for music, can see this thing as clearly as the best trained musicians, and we ask them to think of it and to act upon it.

Another point. All children sing. They sing almost as surely as they talk. The want of "ear" may make here and there an exception, but it will be so rarely found that it need not be estimated. Not all adults sing, can sing, or can be taught to sing. Disuse of the vocal chords in childhood, will incapacitate an adult for singing, and his throat will be like a withered arm, beyond recovery for actual use. But all children can be taught to sing. All boys and girls can sing, if it suits them to do so in the way of play. You never

see little boys and girls "beg off," when they want to sing together. In Germany, it has long been considered certain that all children can sing. They do not admit exceptions, except in the case of the dumb. They not only argue from the general frequency of singing among children at play, but from the laws of music, as manifested in human language. Speech itself is but a kind of chant, and the voice always moves in musical intervals. The rising of the pitch a third, a fifth, an octave, i. e., from do to me, from do to sol, and from lower do to upper do, is by no means confined to singing and recitation; it is what we always do under the influence of the slightest excitement, and when we ask questions. Our voices always go up and down, following the musical scale, and according to musical intervals. All can sing, therefore; that is, all who can talk and who raise their voice and let it fall, according to the usual laws of speech. And yet we, in this country, assume that a great many children cannot learn to sing, and let them grow up to maturity without this great blessing.

Still another point. It has been recently discovered that all children have a certain instinct, in the matter of musical memory, which older people have not. It is something like the memory of the carrier-pigeon and the dog. A class of young children can be trained to remember the pitch of certain fixed tones, such as C, F sharp, B flat, A, and indeed all that we know in music. Remember them, I mean, from day to day. Remember them, so as to need no pitch-pipe or tuning-fork. Remember them, so that you may call out a class of boys and girls, and say to them, sing G, A sharp, C, D flat, F, or any other tone, and they will sing it as promptly and correctly as they will tell you how much is nine times six, or three times four. This is a new discovery—one of transcending interest and importance. Grown people cannot do this; only children can. And yet with such capabilities we have been content to let them grow up, and then to try to teach a handful to sing, organize a quartette here, train a solo there, get together a small chorus in another place; and all the while let the children go losing those years of their life when nature makes them

all singers, and gives them this wonderful memory of musical tones.

I expect to go into our best public schools, ere long, and hear the teacher say, "John, read the next phrase," and John shall stand up, and, without taking his pitch from anything but his memory, shall "read" in the musical sense, i. e., sing an entire passage, however difficult, taking all the sharps and flats, giving the correct expression, and reading it as well as he would a passage from Webster or Channing. This is actually accomplished in the best schools of England and Germany, and there is nothing in it chimerical or impracticable. And when this stage shall be reached, we shall be in a new era of congregational singing.—*W. L. Gage, in Congregationalist.*

YOU WAS.

WE have noticed, on several occasions of late, the use of the uncouth solecism "You was,"—uncouth at least in print, though it is somewhat common in ordinary conversation. From the character of the publications in which this form of speech has made its appearance, we are satisfied that it was not the result of ignorance or carelessness, but that it was used purposely and with a design.

It is true the phrase *you were* is frequently very vague and indefinite, and the want of a form of expression to answer the purpose here intended by the solecism under consideration, like the want of a pronoun of the common gender, is very generally felt. The strictly proper forms, *thou wert*, etc., have fallen into almost entire disuse except in solemn style as in prayer, or in poetry. As we have said, there is very frequently a vagueness in the use of the expression "you were;" so that if I ask one the question, "were you there?" a listener could not determine from the question alone whether I referred to one person only or to more than one.

The expressions, "you are," "you were," etc., are, strictly speaking, of the plural form, but as we have seen, the old

forms "thou art," "thou wert," etc., have fallen into comparative desuetude, and the plural forms of expression in these cases have come to be used even when we have reference to one individual only. So long as we retain and make use of the plural form of the pronoun when addressing an individual, so long, to be consistent, we must attach to it a verb in the plural. Not only to be consistent, but to be grammatical. There is no principle of grammar more universally recognized than the agreement of a verb with its nominative in number and person. Custom, long established and universal, which gives law to language as to everything else, has set the seal of legitimacy upon the expression "you were," whether applied to one person or to many.

But those who favor this innovation, to be consistent, must extend this intended improvement to the second person singular of the verb "to be" throughout the perodizm. We shall then have our language enriched and made more perspicuous by such expressions as "*you is*," "*you was*," "*you has been*," etc. In these new-fangled and not over beautiful expressions, as well as many others that would be deduced from the complete conjugation of the verb, we have an argument sufficient, we hope, to prevent the adoption of the proposed improvement—an argument which is, in the language of Mr. Swiveller, "a most inscrutable and unmitigated staggerer."

It will not do to claim that in the case of the second person singular in the perfect tense, we should use the word "have" and not "has," because in the *first* person of that tense we use "have" where the idea certainly is of something in the singular number, as is evident from the pronoun "I;" that is the very reason why we may use the plural form of the verb in that case, as there can be no ambiguity or indefiniteness in the expression, while the very object had in view by those who favor the innovation which we are considering, is to render the language as clear and perspicuous with reference to the second person singular as it is with reference to the first; and hence the use of the word "has" in the latter case instead of "have."

A living language, especially a composite language like the English, is susceptible of and is constantly receiving

improving touches; but we cannot see that there could be any improvement in exchanging our present well-established* conjugation of the verb "to be" for such a jargon as this proposed innovation would give us.

T. J. CHAPMAN.

THE GULF STREAM.

THE study of the phenomena of the Gulf Stream has lately been undertaken with great earnestness by two competent observers—Dr. Petermann, the German geographer, and Mr. James Croll, a Scottish geologist. Dr. Petermann claims to have been the first to show that the Gulf Stream is a deep, slow-moving and permanent warm current from Newfoundland, not only to the coast of France and the parallel of 45 deg. of North lat., to which limits most of the former hydrographers had confined it, but to the British Isles, Scandinavia, Iceland, towards Greenland, Bear Island, Jan Mayen, and the West coast of Spitzbergen, to Novaia Zemlia and the Polar Basin, passing the Northmost capes of Siberia as the "Polynia," of Wrangell, its influence being felt even as far as Cape Jukon, near Behring Strait. This view he still maintains, supporting it by the vast number of observations which he has collected; but his opinions are challenged by several distinguished hydrographers.

Mr. Croll now comes forward with some new suggestions, founded upon recent observations. In a series of papers on "Ocean Currents," published in the *Philosophical Magazine*, he answers two questions—namely: "What end and purpose does the Gulf Stream serve?" and "What influence has it upon the condition of the globe?" He shows, by a chain of evidence which is apparently trustworthy, that the current of the Gulf Stream carries as much heat from the tropics as is received by the globe within sixty-three miles on each side of the equator, an amount which probably equals the entire quantity of heat received by the whole Arctic regions from the rays of the sun. Mr. Croll estimates that the stoppage of the Gulf Stream would deprive the

Atlantic Ocean of a quantity of warmth equal to one-fourth of all the heat received from the sun by that area; that if all currents ceased to flow, and each place were dependent upon the direct rays of the sun alone for its heat, the equator would be 55 deg. warmer than at present, the poles 83 deg. colder. The mean temperature of the latitude of London would be only 10 deg. London, therefore, its present actual mean temperature being 50 deg., is benefitted to the extent of 40 deg. of heat by the Gulf Stream.

Mr. Keith Johnston, Jr., in summing up the results of Mr. Croll's investigations, observes :

Basing upon Mr. Croll's estimate of the temperature (ten degrees) of the latitude of London if deprived of the warmth of the Gulf Stream, this seeming paradox must be true, that an ice-bearing current may raise the temperature of a region. Labrador has really a warm friend in the icy current which clings to its shores; for though the mean annual temperature of that country is but thirty-two degrees, still according to Mr. Croll's showing, this would be reduced by no less than twenty-two degrees were the polar stream to fail. Though considerable uncertainty necessarily exists regarding the data used, yet the general results arrived at of the enormous influence of ocean currents on the climatic conditions of the globe in distributing the heat received from the sun cannot be materially affected, and almost warrant the conclusion come to by Mr. Croll, that without ocean currents the earth would not be inhabitable.

These discoveries appear to Mr. Croll to throw a new light on the mystery of Geological climate. Were the warm currents from the equator Northward to be turned off, the Northern hemisphere would speedily pass into a state of general glaciation. Such a deflection of the currents, it is believed, might take place by a change in the eccentricity of the earth's orbit. A high condition of eccentricity would tend to produce an accumulation of snow and ice in the hemisphere whose winters occur in aphelion, exactly the opposite effect would take place in the other hemisphere which has its winter in perihelion. Then, since the trade winds owe their existence mainly to the difference of temperature which exists between the polar and equatorial

regions, it follows that the trade winds of this colder hemisphere would greatly exceed those of the warmer in strength; and would impel the warmer waters of the tropics entirely over into the opposite hemisphere, in the same manner as the Southeast trade winds of the present state of the globe, from the Southern (colder) hemisphere, now overcome the Northeastern; and aid in transferring a larger share of the equatorial waters to the warm currents of the Northern hemisphere. A similar condition of things to that which prevailed during the glacial epoch would then exist in the one-half of the earth, while a climate equal to that which geologists know to have prevailed in this hemisphere during a part of the Miocene period, when North Greenland enjoyed a climate as mild as that of England at the present day, would reign in the opposite hemisphere.

THE UNIFORMITY QUESTION AGAIN.

THE very sensible and well-reasoned report of Mr. Giles Potter, to the Legislature of Connecticut, which we print herewith, will prevent the success of any effort to enforce the use of a uniform series of school-books throughout the public schools of that State. We desire to add to Mr. Potter's array of reasons, one which would have reinforced his argument, and has a weight of its own besides; viz.: That on modern and improved principles of education the oral instruction of the teacher is of more decisive importance than any choice among the innumerable current school-books in the market. Select a hundred average common school graduates, and class them as good, bad and indifferent, say in respect to their proficiency in arithmetic, or in geography. You will not find that the classification corresponds perceptibly with any choice of arithmetics or geographies. It has been caused by two factors; first, the natural ability of the pupil, and second, the ability of the teacher.

SCHOOL BOOKS.

Mr. Potter reported from the Committee on Education, as follows:

GENERAL ASSEMBLY, *May Session, A. D. 1871.*

The joint standing committee on education, who were instructed by resolution "to inquire into the expediency of establishing a uniform set of school books for the use of common schools," beg leave to report that they have had the subject under consideration, and are of the opinion that on very many accounts it is desirable that there should be one and the same series of books used in all the schools of the State, and

First—Because the use of such uniform series would do away with the confusion which now exists in some schools where no uniform series is used.

Second—It would remedy an evil in some towns where the local boards have neglected to prescribe books.

Third—It would save expense to those children removing from one town to another, and often from one district to another in the same town.

Fourth—It would prevent frequent changes of books, which is a very great evil, for while occasional changes are desirable and sometimes indispensable for the good of schools, too frequent changes retard the progress of pupils, embarrass teachers, and tax those having care of children heavily and unjustly.

Fifth—It would prevent the introduction into the schools of inferior books by incompetent local boards for private interest.

On the other hand, your committee find great difficulties in establishing and maintaining such uniformity of books, and some objections to having such uniformity if it could be brought about and retained.

First—The expense of making a change to a uniform series. Your committee find that in the various schools of the State there are used eleven different spelling books, ten series of arithmetics, eight series of readers, seven grammars, seven histories and eleven geographies; that only about one-ninth of 119,944 children reported as attending school the past year use the same books (that is, taking the average of the number of books given above) which is the best information your committee can now obtain. In order, then, to procure uniformity, eight-ninths of the children, that is 101,061, must have new books. The average cost of new books for each child, your committee estimate at four dollars at retail. For introduction, these books can be had at half price, (not less at the present time, owing to the trade compact, whereby the publishers have agreed not to introduce books at less than half retail price). This would then cost the State, or those having children, more than \$200,000; probably with cost of making the change not less than a quarter of a

million. This would be a heavy tax on the poor people of the State. If such a change is to be made, your committee would recommend an appropriation from the State treasury of \$250,000 to furnish the books.

Your committee have tried to devise some method to effect the change gradually, so as to order that all new books hereafter purchased shall be of one prescribed series. But such an order, it will readily be seen, would produce a diversity of books in eight-ninths of the schools for at least five years, and at the end of that time, many that first made the change would desire another, and the State board or other constituted authority might at the end of five years (though your committee would hope not), be induced to order new books, thus there would be confusion *ad infinitum* between the old and the new prescribed books.

Second—Your committee do not doubt from what has been stated to them, that the local boards having charge of schools in the large cities and towns, would either insist that the books they use should be the books for the schools of the State, or that their city or town should be an exception to the general order; thus would arise a clashing of interests: and a general order with exceptions would effect but little.

Third—Parents and those having charge of children should have an influence in this matter of books; they have little enough, it is true, with the local boards, but with a State board they could have none at all. The local board is in a measure under their control, the State board further removed and more independent.

Fourth—The power to prescribe what books shall be used in all the schools of the State is too great a power, exposed as it would be to corrupting influences, to be placed in the hands of the board of education, or any other board. If it is true, as has been stated, that local boards have been bought when a trade of a few hundred dollars was pending, what shall be said of a State board when a trade of several hundred thousand dollars is at stake? It has already been shown that the first cost of making a change could not be less than \$200,000; this in itself would not be a matter of so much importance, inasmuch as we reckon the books at half price only (but this, undoubtedly, pays a profit). But the subsequent trade would be an object worth bidding for. It probably costs, on an average, a dollar a year to furnish each child with new books when no changes are made. This would make a trade, with the present attendance in our schools, of \$119,944, or to the publisher of \$100,000. Now, to have this guaranteed for five or ten years, is quite an object, and publishers could well afford to pay one or two hundred thousand for the trade.

The gentleman who offered the resolution to instruct your committee paid a high compliment to the integrity and wisdom of the board of education when it proposed to place this power with its temptation in their hands; and in the opinion of your committee the com-

pliment is well deserved, and they do not doubt that, if this board is required to direct what books shall be used in all the schools, they will act wisely and independent of any mercenary influence or private interests.

But corrupt men are found in places of trust, and who can tell what men may at some future time find a place on this board, especially if it be made a place of emolument at the expense of the people. Place this power with whatever body we please, or let the general assembly itself assume to direct what book shall be used in all the schools, and the same objection holds good.

Fifth—If the board of education or any committee of the legislature itself should act with perfect integrity, unbiased by any outside influence in prescribing one set of books in the schools to the exclusion of all others, their good intention, wisdom and integrity would be assailed, the value of their work destroyed, and the interests of education thereby suffer. This objection would have but little weight with your committee had it not been for a remark made to a member of the committee by the mayor of one of our cities, that the member who introduced this matter of school books to the legislature must have been in collusion of some one publishing house. Your committee know that this is not so: that the source from whence the resolution instructing them to inquire into the subject came, is far above all influence of that kind here referred to, and that the question was introduced solely with regard to the good of the cause of education and the economy of the people of the State. But the remark shows the force of the objection your committee here present to the proposed measure; also how the best motives of the friends of education are misunderstood, and how they will be misconstrued if they attempt to act in the matter under consideration.

It has also been stated to your committee that the same books might not be equally well adapted to all the schools of the State, the graded and the ungraded schools.

Other reasons for and against the measure have been stated to your committee, but the committee consider them of little force.

In view of all the reasons mentioned in this report, your committee are of the opinion that it would not be expedient to direct or to order any board to direct what school books shall be used in all the schools of the State.

All of which is respectfully submitted.

GILES POTTER,
Chairman on part of the House.

INSECTS are believed to have the power of appreciating sounds of great delicacy, and sometimes, by organs of sense which seem strangely situated. Mr. Wallace says that the Orthoptera—such as grasshoppers, etc.—have what are supposed to be ears on their fore-legs.

CORPORAL PUNISHMENT.

THE law is silent on the subject of corporal punishment in schools. It neither grants nor withholds authority to inflict it. The whole subject is left to the judgment and discretion of the local school authorities, and to the sanction of general usage and custom. That the teacher must be clothed with authority to use the rod in certain cases is self-evident. It grows out of the very nature of the case, and of his relations to his pupils. The prudent exercise of such authority is acquiesced in by the opinions and practice of the whole country, and is almost invariably sustained by the courts, on the ground, not of statutory enactments, but of common custom, common sense, common justice, and the nature and necessity of the case. It is only the flagrant abuse of the admitted right which either society or the law is disposed to frown upon and condemn. It is undoubtedly true that, in order to support an indictment for assault and battery, it is necessary to show that it was committed *ex intentione*, and that, if the criminal intent is wanting, the offense is not made out. But this intent is always inferred from the unlawful act. The unreasonable and excessive use of force on the person of another being proved, the wrongful intent is a necessary and legitimate conclusion in all cases where the act was designedly committed. It then becomes an assault and battery, because purposely inflicted without justification or excuse. Whether, under all the facts, the punishment of the pupil is excessive must be left to the jury to decide.

What is the great end of a system of public schools supported by the State? Can the answer to this fundamental inquiry be more comprehensively epitomized than in this proposition? The chief end is to make *good citizens*. Not to make precocious scholars; not to make smart boys and girls; not to gratify the vanity of parents and friends; not to impart the secret of acquiring wealth; not to confer the means of achieving the ends of personal ambition; not to enable the youth to shine in society; not to qualify directly for professional success; not one or all of these, but simply, in the widest and truest sense, *to make good citizens*. The

State, as such, has nothing to do with the foregoing enumerated objects: it leaves them all to other agents and other influences. If parents seek brilliant scholarship, morbid precociousness, social preëminence, affluence, or professional distinction for their children, the State has nothing to say; but inasmuch as none of these things are *essential* to a true and noble citizenship, the State will not enact laws, frame systems, levy taxes, build school-houses, and employ teachers to enable those parents to carry out their designs. That such selfish and subordinate ends are often sought through, and to some extent promoted by, the public schools is true, but it is not the *object* of public schools to foster such ends. The aim of the commonwealth is higher and broader. It has to do with the child only in its civil relations, as a member of the great body politic; not, primarily, in its home relations, as a member of the family. And yet, in an important sense, the State derives its highest and truest ideas of education from that divinely instituted and most perfect form of government—that of the family. For those very habits and qualities which make home pure and tranquil and happy, being continued and transferred from the child to the citizen, insure an orderly, virtuous, and peaceful state. Indeed, the family is the smallest organized subdivision of the State, and the aims of public education are substantially accomplished when the lessons of duty to the former are simply expanded so as to comprehend the latter. If the individual families are well governed and virtuous, the commonwealth can not be turbulent and vicious; for the members of such families will recognize their obligations to the State, as its political children, not less cordially than their obligations to their parents. This view so simplifies our problem that we have now but to inquire what is essential to the welfare of the family, what it is to be in the largest sense a good *child*, and we shall know, very nearly, what is essential to the welfare of the State, what it is to be a *good citizen*. Without any argument on this point, it will be conceded that obedience to the parental authority is a primary attribute of the good child. Even so, *cordial submission to lawful authority is a primary attribute of good citizenship.*—Walsh's School Lawyer.

THE SONS OF PESTALOZZI.

TRANSLATED FROM THE GERMAN OF CARL GUTZKOW.

CHAPTER XIII.—(Continued.)

NESSELBORN could not prevent the professors of natural science, philosophy, and theology from taking hold of his pupil to make their experiments on him. The cosmopolitan character of his wife, and the vain excitability of his daughters had thrown open Theodore's little room to any visitor to make speaking experiments with him, to try the awakening of recollections that did not exist, to introduce subjects that were not understood. Magnetizers and homœopaths tested on him the effects of metals and medicines. The phenomena resulting from these experiments were quite wonderful. The effects of iron and gold, silver and lead proved to be quite different; *nux vomica*, *belladonna*, and similar drugs caused fainting and sickness to him by their mere smell. Linguists would experiment on him to find out whether language is an inborn or acquired faculty; for they had discovered and were following up his wonderful instinct as to inventing certain forms of language, and inflecting nouns and verbs. Gradually a larger store of German words was found to exist in him than it was at first supposed. The theologians stood aghast at his absolute incapacity to grasp the idea of a Supreme Being. That there were tricks and deception in the world, he had learned first of all. The poor boy experienced at the first day after his resuscitation how malicious was the nature of men. The peasants gave him whisky instead of water, snuff and dirt instead of bread. Thus distrust in all that was asserted by men took possession of his heart. He considered it as a trick, if a being was mentioned to him that made all things grow, that took care even of him, and had released him from captivity. He never saw anything but the next cause. For him, it was black earth that made the trees grow. His deliverer, to him, was a man in a green coat, who had disappeared but too soon.

In the first stage of Pestalozzi's educational system the children are simply made to repeat the words pronounced to them by the teacher. In this exercise, which was faithfully applied by Lienhard, the originator of the system has shown a deep insight into human nature. Man uses language as a fish does its fins. Neither is conscious of the agency that propels him. That words have a meaning, the child learns when manifesting his desires, his passions, his hunger, thirst, love, and anger. The words he uses are to him as the air he breathes. The facts expressed by the words: "*I am a poor orphan boy found in the forest,*" may be felt in the soul of a child, or known by means of his memory, but a clear perception of the facts will enter the soul only together with the outspoken words, rightly chosen and distinctly construed. And not only will the idea actually expressed enter his soul, but the whole crowd of perceptions associated with it, a luxuriant growth of conclusions and suppositions as to other forms and possibilities. Thinking is a process by which things out of us become parts of our minds or our own objects. A child will a hundred times say something in a loose way without making what he says an object for himself. If bidden to repeat the very same words again in the presence of another, the child will often pause and hesitate. It is thus that the word assumes a different nature, and becomes ponderous. Thus the echo of the word will reverberate in the child's thoughts, and create the faculty of thinking, which is springing into existence just when the sounds of that echo are heard.

Pestalozzi's second law is this: "Do not teach in a desultory way! Do not pass over deductions and explanations, nor indulge in fragmentary instruction! For if you do this, it is only because the order and regular progress make you tired, and being tired of your own calling, you are a bad specimen of a teacher!" Lienhard, in a letter to his father, made the following remarks in regard to this rule: "Sameness, and again sameness is the deity presiding over the teacher's hearth, his very recreation and entertainment. Ever the same! incessant as the flow of the scanty rivulet, as the monotonous sounds of the mill-wheel! Your own mastership in this scholastic sameness, my dear father, I

have ever admired. A teacher is another Sisyphus or Ixion, condemned to roll the same rock, the same wheel upward, and ever upward!"

It is true, in applying this principle to Theodore's case, Lienhard gave very wide boundaries to it, but he did it cautiously and with wise discrimination. He never made a leap from the animal to the vegetable kingdom, or from the oak to the pumpkin, from the house before him to Nubia and Abyssinia. He found that Theodore profited little if, in taking him out to the fields, he would analyze for him here a frog, and there a butterfly. According to Pestalozzi, the rich variety in nature delights only a matured mind, knowing how to classify the single phenomena. For such a one, the sharp outlines drawn by nature are in no danger of running into each other. For him, the song of a bird, and the fragrance of a rose, are things different, and only in a higher sense could he view them as identical.

"Base everything you teach on intuition!" This third of Pestalozzi's laws was carried out by Lienhard with the same conscientiousness. Thus he taught Theodore Arithmetic merely by examples. The distinction of numbers he had made clear to him by the very toys he played with. A long time was to pass before the wooden toy-horses would lose their attraction for Theodore. It would have been of no avail to explain to him that there were better prototypes of the equine idea than those petty wooden counterfeits. Theodore's delight in toys did not cease before he had mounted a real horse, and before the courage shown by him in uniting himself, as it were, with the animal, and the easy and inspiring motion on the saddle became a new source of delight. But till he could accomplish such a daring feat, a long time had to pass. For, in the beginning, Theodore was not even able to walk. Having, for years, been strapped to the cold floor of his dungeon, he was prevented from giving to his tender feet that exercise which would prepare them for their destination. They had become like the palms of his hands. In the first days after his release he had to be carried about. Then his gait became a kind of groping, and his body always seemed about to break down. It was long before his faltering and

stooping attitude and his shuffling style of walking disappeared. The regular taking of opiates had greatly contributed to weakening the unfortunate boy. He had passed in sleep more than half his life.

As in all cases of unusual excitement a slackening of public interest is sure to follow, so it happened in this case. After some months, the extraordinary event had lost its novelty, and the universal eagerness to hear news of Theodore Waldner was subsiding. The judicial investigation had been without important result. Wülfing and his wife had disclosed nothing, and, indeed, nothing could be charged against the former, except his intimacy with Hennenhöft at a time previous to the probable birth of the unfortunate child. By the disclosure of Wülfing's earlier offences his reinstatement to his former official position had become impossible. When Wülfing and his wife were released from custody, they only appeared once more in Steinthal to dispose of their property. It made some sensation that the Baron Otto de Fernau himself met them at Steinthal and treated them with the utmost consideration. It was said that Wülfing intended to emigrate to America. As for Hennenhöft, several facts had been ascertained, regarding his whereabouts, after his attempt to burn Count Wildenschwert's castle. He had been seen roaming round for a while in the country, and then had left for Havre, a port frequently used by Germans about to emigrate to America. Four years later he had reappeared, and immediately obtained the appointment as woodkeeper in the domains of Mrs. de Fernau. People generally believed that his victim, the boy Theodore Waldner, had come with him from France, and many held the opinion that Hennenhöft had been charged by some French family of high rank to place the boy out of sight.

There was also another theory according to which the foundling was believed to be a child of Countess Jadwiga,, and that she had charged Hennenhöft with putting him out of the way, in order to get, after her divorce, possession of her property, which otherwise the Count, her husband, would have been entitled to keep. Other facts seemed to support this theory, the crime having been perpetrated on

her own lands, and by one of her officials. Years ago the Countess had all but fled from her husband, and this had happened almost at the same time with other events so mysterious that even the Count had not dared to lift the veil from them. The Count had made several attempts to bring about a reconciliation with his wife, all of which had failed. Then, divorce had been pronounced, and the Count had re-entered the service of government under which he had been sent beyond the ocean on a diplomatic mission. But this was not all. Upon the first rumor of what had happened, the Countess, now Mrs. de Fernau, suddenly departed for Italy. That excited grave suspicion, too weak, however, for a formal accusation against her. When, after some years, she returned, these rumors had either died away, or were drowned in the louder sounds of carriage wheels rolling up to her gate, or in the strains of music at her receptions.

Mrs. de Fernau's attitude, indeed, was such as to win for her general admiration. If people whispered that she was not altogether free from reproaches in regard to her divorce from her former husband, nobody could deny that her whole life since that time was irreproachable. Her manner of conducting the education of her two sons gathered golden opinions for her, and placed her stern sense of duty in the strongest possible light. Only one man made the remark that her great severity was self-imposed atonement for some secret guilt, burdening her conscience. And this man was her own brother-in-law, Linda's husband.

Henry de Fernau, and his brother Otto, ever since Jadwiga's second marriage, had completely ignored each other. As soon as the events connected with the finding of Theodore Waldner had become known, Henry de Fernau's neglect of his brother was turned into a feeling of hatred; but the effect on Linda was that of compassion. She was convinced that Jadwiga was innocent of Waldner's captivity, if the latter was really her and Count Wildenschwert's son. But her husband contested this opinion. He believed that Jadwiga's hatred against Count Wildenschwert had blinded her into madness and fury against the boy bearing his name.

It was about two years after Theodore Waldner's discovery, when Henry de Fernau's official duties obliged him to tarry for a day or two in the same city where Lienhard Nesselborn was performing his educational experiment with the foundling. By this time the opinion had spread that Lienhard was pursuing a wrong course, owing to the interference of his wife and his two daughters, Levana and Adelgunde. Their and Lienhard's views, indeed, differed widely. For them, Theodore Waldner was not the providential object of true and pure education, but rather the centre of a scandal in high life, perhaps a Count, a Prince, or even an heir to a throne. They surrounded their "foster-brother" with flattery; they put in his head ideas of a great and brilliant future. At one time they would intimate to the boy, how his mother, a lady of high rank, was weeping and longing for him, prevented, unquestionably, by certain secret considerations from acknowledging him before the world. Another time they would give him to understand that most probably his mother had acted fraudulently towards his father. Theodore had doubtless stood in somebody's way who, by his removal, had secured some enormous gain. Lienhard's course was much too slow for his daughters; in order to hasten it, they constantly tried to get the start of their father. Theodore was, as soon as possible, to participate in their own social culture. Thereby they sickened, and confounded the unfortunate boy's mind. Obstinacy and waywardness were planted in his child-like soul; distrust and unspeakable pain took possession of it, and he often would assert with tears a longing for his gloomy prison.

Henry de Fernau resolved to see the foundling, whose likeness with both the Count Wildenschwert and Jadwiga was unmistakable. His sharp eye soon discovered that those who found fault with Nesselborn's educational method, were right. All the town and vicinity were of the same opinion. Mr. Nesselborn, they said, had the very best intentions, but he was much too weak to counteract the mischievous influence of his family. The youth was taken to every party, where he was the special attraction for the ladies. Last winter he had even taken part in dancing

parties while, a year before, he had not even been able to walk. The public was generally aware that his zeal for learning had slackened, while the variety of new objects by which his rudimentary knowledge was more confused than enriched, was ever increasing.

President de Fernau candidly expressed his opinion to Mr. Nesselborn, who, with deep emotion, confessed his complete failure. "Yes," he said, "take the boy away from me. Heaven knows with what enthusiasm I entered upon my work. But the unhappy idea of the people that the boy was the whole world's property has destroyed my quiet labors, and counteracted my best plans. This flower of the dungeon needed quiet and secluded nursing under a glass bell. Ah! my home is not quiet and secluded! My wife has always been eager for changes. She loves society and the restless intercourse of daily life. So do my daughters, and this has prevented me from keeping the control of my pupil. I confess, it is my greatest desire to be relieved from this duty. The boy is like the bud of a flower, prematurely removed from its stem to unfold it by artificial means. The bud must once more be restored to its stem, once more he must become a child to be brought up in the midst of plainest nature. Else he will be ruined. He surely will become a worthless member of society, unless we can take him back to the very threshold of his former tomb, and carefully and slowly pave his new road into the world."

"But how can we accomplish this?" interrupted the President, calmly and with sympathy.

Lienhard proposed his own father as most fit for recommending Theodore Waldner's education. Although Mr. de Fernau considered it as dangerous in many respects to transfer the unfortunate boy to the very vicinity of his former prison life, he nevertheless assented to the proposed change after he had found that old Mr. Nesselborn was eminently qualified to correct the great mistakes which had been committed in the experiments to which Theodore Waldner had been subjected.

Six months after Theodore's transfer to Steinthal, Lienhard Nesselborn moved into the metropolis, where he established a great educational institute, intended to compete

with the gymnasia of the city. The establishment had a surprising success, and its fame soon extended far beyond the frontiers of Germany. It was whispered that Lienhard had received the necessary funds from the Baron Otto de Fernau and his wife Jadwiga.

THE MUSCULAR STRENGTH OF INSECTS.

THE strength of an insect can be finely illustrated by a feat that was once performed by a beetle—*oryctes maimon*—a variety that is quite common in the United States. The beetle, for want of any box at hand, was put beneath a quart bottle full of milk upon a table, the hollow at the bottom allowing him room to stand upright. Presently, to the surprise of all in the room, the bottle began slowly to move and glide along the smooth table, propelled by the muscular power of the imprisoned insect, and continued for some time to perambulate the surface. The weight of the bottle and its contents could not have been less than three pounds and a half, while that of the beetle was about half an ounce, so that it readily moved a weight one hundred and twelve times exceeding its own. A better notion than figures can convey will be obtained of this feat by supposing a lad of fifteen to be imprisoned under the great bell of St. Paul's, which weighs 12,000 pounds, and to move it to and fro upon a smooth pavement by pushing within against the side.

We have another instance of insect power that is quite as remarkable as the one just related. A small kind of carabus, an elegantly formed ground beetle, weighing three and a half grains, was once fastened by a silk thread to a piece of paper, a weight having been previously laid upon the latter. At a distance of ten inches from its load, the insect was able to drag after it, upon an inclined plane of twenty-five degrees, very nearly eighty-five grains; but when placed on a plane of five degrees inclination, it drew after it one hundred and twenty-five grains, exclusive of the friction to be overcome in moving its load.

CHAIRS.

A CHAIR must have been one of the most ancient of inventions. After the use of fire, after the rudest forms of grinding and weaving, something to sit down upon must have presented itself as the next desideratum. But it must not be supposed that a chair was the direct result. As Lord Lytton says: "Man has only given to him, not the immediate knowledge of the perfect, but the means to strive towards the perfect." And he elsewhere observes: "Man must build a hut before he can build a Parthenon."

At work in the primeval forest, felling trees and clearing the ground, man may first have experienced the comfort of a raised seat by placing himself on the stump of a tree. But, however eligible this support might be in other respects, it labored under the disadvantage of being immovable. But blocks could be sawed off so as to become moveable. A brilliant thought! no sooner conceived than acted upon; and perhaps several generations passed before some genius hit upon the idea of obviating the cumbersomeness of these heavy, solid blocks, by fastening a piece of plank on three supporters, and producing a three-legged stool. The tradition runs that Tarquin introduced the ivory curule chairs into Rome; be this as it may, they were in use in the time of Brutus; who, though he destroyed the kingly power, and changed the Constitution of Rome from a Monarchy into a Republic, knew how far he could safely go, and did not dare to touch the chairs. The prætors and ediles who were permitted to occupy them, esteemed the privilege so highly that they retained the curule chair at home after their term of office had expired, as a proof of the dignity to which they had attained. These Roman officials were so much attached to their seats that they would not part with them when they went abroad, but had chairs placed upon wheels, and in these chariots—often elaborately ornamented with gold and precious stones—they showed themselves to the admiring, unseated multitude. The Romans considered it an honor to ride in these wheeled curules, that were "remarkably high," Pliny tells us—a convenient method of acquainting the spectators with the degree of homage

expected from them, equivalent to the method employed by artists of olden times, who always depicted kings and heroes as at least twice the size of ordinary men.

"There is nothing new under the sun," saith the preacher. At the period known in art language as the Renaissance, the modern European was struck with the idea of going about in chairs. About the year 1581, covered chairs, slung on poles, were invented at Sedan, whence the name of these conveyances. Sir Sanders Duncombe obtained a patent for the Sedan chair in 1634, and by 1649 they were in general use. In 1711, an act was passed limiting the number of licensed Sedan chairs to 200, but in 1726 it was increased to 400. This act did not affect the use of private chairs.

When the favorite—Buckingham—used this mode of conveyance, he was hooted at by the public, who cried that he was employing his fellow-creatures to do the service of beasts; but this prejudice soon gave way, and the Sedan chair, often handsomely gilt and painted, became part of the furniture of the hall in the houses of the nobility and the wealthier classes, and the chairmen formed a part of every large establishment.—*Temple Bar.*

THE SUNBEAM.

THE greatest of physical paradoxes is the sunbeam. It is the most potent and versatile force we have, and yet it behaves itself like the gentlest and most accommodating. Nothing can fall more softly and more silently upon the earth than the rays of our great luminary,—not even the feathery flakes of snow, which thread their way through the atmosphere as if they were too filmy to yield to the demands of gravity like grosser things. The most delicate slip of gold leaf, exposed as a target to the sun's shafts, is not stirred to the extent of a hair, though an infant's faintest breath would set it into tremulous motion. The tenderest of human organs,—the apple of the eye,—though pierced and buffeted each day by thousands of sunbeams, suffers no pain during the process, but rejoices in their sweetness, and

blesses the useful light. Yet a few of those rays, insinuating themselves into a mass of iron, like the Britannia Tubular Bridge, will compel the closely knit particles to separate and will move the whole enormous fabric with as much ease as a giant would stir a straw. The play of those beams on our sheets of water lifts up layer after layer into the atmosphere, and hoists whole rivers from their beds, only to drop them again in snows upon the hills or in fattening showers upon the plains. Let but the air drink in a little more sunshine at one place than another, and out of it springs the tempest or the hurricane, which desolates a whole region in its lunatic wrath. The marvel is, that a power which is capable of assuming such a diversity of forms, and of producing such stupendous results, should come to us in so gentle, so peaceful, and so unpretentious a guise !

NO BONES IN THE OCEAN.

MR. JEFFREY has established the fact that bones disappear in the ocean. By dredging it is common to bring up teeth, but rarely ever a bone of any kind ; these, however compact, dissolve if exposed to the action of the water but a little time. On the contrary, teeth—which are not bones any more than whales are fish—resist the destroying action of the sea-water indefinitely. It is, therefore, a powerful solvent. Still the popular opinion is that it is a brine. If such were the case, the bottom of all the seas would, long ago, have been shallowed by immense accumulations of carcasses and products of the vegetable kingdom constantly floating into them.

Dentine, the peculiar material of which teeth are formed, and the enamel covering them, offer extraordinary resistance to those chemical agencies which resolve other animal remains into nothingness. Mounds in the West, tumuli in Europe and Asia, which are believed to antedate sacred history for thousands of years, yield up perfectly sound teeth, on which time appears to have made no impression whatever.

WHAT KNOWLEDGE IS OF MOST WORTH?

EDUCATION FOR GAINING A LIVELIHOOD.

PART FIVE.

WE need not insist on the value of that knowledge which aids indirect self-preservation by facilitating the gaining of a livelihood. This is admitted by all; and, indeed, by the mass is perhaps too exclusively regarded as the end of education. But while every one is ready to endorse the abstract proposition that instruction fitting youths for the business of life is of high importance, or even to consider it of supreme importance; yet scarcely any inquire what instruction will so fit them. It is true that reading, writing, and arithmetic are taught with an intelligent appreciation of their uses; but when we have said this we have said nearly all. While the great bulk of what else is acquired has no bearing on the industrial activities, an immensity of information that has a direct bearing on the industrial activities is entirely passed over.

For, leaving out only some very small classes, what are all men employed in? They are employed in the production, preparation, and distribution of commodities. And on what does the efficiency in the production, preparation, and distribution of commodities depend? It depends on the use of methods fitted to the respective natures of these commodities; it depends on an adequate knowledge of their physical, chemical, or vital properties, as the case may be; that is, it depends on Science. This order of knowledge, which is in great part ignored in our school courses, is the order of knowledge underlying the right performance of all those processes by which civilized life is made possible. Undeniable as is this truth, and thrust upon us as it is at every turn, there seems to be no living consciousness of it: its very familiarity makes it unregarded. To give due weight to our argument, we must, therefore, realize this truth to the reader by a rapid review of the facts.

For all the higher arts of construction, some acquaintance with Mathematics is indispensable. The village carpenter, who, lacking rational instruction, lays out his work by em-

pirical rules learnt in his apprenticeship, equally with the builder of a Britannia Bridge, makes hourly reference to the laws of quantitative relations. The surveyor on whose survey the land is purchased; the architect in designing a mansion to be built on it; the builder in preparing his estimates; his foreman in laying out the foundations; the masons in cutting the stones; and the various artisans who put up the fittings; are all guided by geometrical truths. Railway-making is regulated from beginning to end by mathematics; alike in the preparation of plans and sections; in staking out the line; in the mensuration of cuttings and embankments; in the designing, estimating, and building of bridges, culverts, viaducts, tunnels, stations. And similarly with the harbors, docks, piers, and various engineering and architectural works that fringe the coasts and overspread the face of the country; as well as the mines that run underneath it. Out of geometry, too, as applied to astronomy, the art of navigation has grown; and so, by this science, has been made possible that enormous foreign commerce which supports a large part of our population, and supplies us with many necessities and most of our luxuries. And now-a-days even the farmer, for the correct laying out of his drains, has recourse to the level—that is, to geometrical principles. When from those divisions of mathematics which deal with *space*, and *number*, some small smattering of which is given in schools, we turn to that other division which deals with *force*, of which even a smattering is scarcely ever given, we meet with another large class of activities which this science presides over. On the application of rational mechanics depends the success of nearly all modern manufacture. The properties of the lever, the wheel and axle, etc., are involved in every machine—every machine is a solidified mechanical theorem; and to machinery in these times we owe nearly all production. Trace the history of the breakfast-roll. The soil out of which it came was drained with machine-made tiles; the surface was turned over by a machine; the seed was put in by a machine; the wheat was reaped, threshed, and winnowed by machines; by machinery it was ground and bolted; and had the flour been sent to Gosport, it might have

been made into biscuits by a machine. Look round the room in which you sit. If modern, probably, the bricks in its walls were machine-made; by machinery the flooring was sawn and planed, the mantel-shelf sawn and polished, the paper-hangings made and printed; the veneer on the table, the turned legs of the chairs, the carpet, the curtains, are all products of machinery. And your clothing—plain, figured, or printed—is it not wholly woven, nay, perhaps even sewed, by machinery? And the volume you are reading—are not its leaves fabricated by one machine and covered with these words by another? Add to this that for the means of distribution over both land and sea, we are similarly indebted. And then let it be remembered that according as the principles of mechanics are well or ill used to these ends, comes success or failure—individual and national. The engineer who misapplies his formulæ for the strength of materials, builds a bridge that breaks down. The manufacturer, whose apparatus is badly devised, cannot compete with another whose apparatus wastes less in friction and inertia. The ship-builder adhering to the old model, is outsailed by one who builds on the mechanically-justified wave-line principle. And as the ability of a nation to hold its own against other nations depends on the skilled activity of its units, we see that on such knowledge may turn the national fate. Judge, then, the worth of mathematics.
—*Herbert Spencer.*

PROFESSOR HUXLEY advocates the use of the Bible as a reading book in schools in language of unusual warmth, which may well surprise those of his critics who charge him, rather hastily, we think, with "materialism" and "atheism." His accusers may take comfort in the old adage, "*Fas est, et ab hoste doceri.*"

These are the words of the eminent naturalist :

"I have always been strongly in favor of secular education, in the sense of education without theology; but I must confess I have been no less seriously perplexed to know by what practical measures the

religious feeling, which is the essential basis of conduct, was to be kept up, in the present utterly chaotic state of opinion on these matters, without the use of the Bible. The pagan moralists lack life and color, and even the noble Stoic, Marcus Antonius, is too high and refined for an ordinary child. Take the Bible as a whole; make the severest deductions which fair criticism can dictate for shortcomings and positive errors; eliminate, as a sensible lay teacher would do, if left to himself, all that it is not desirable for children to occupy themselves with—and there still remains in this old literature a vast residuum of moral beauty and grandeur. And then consider the great historical fact that, for three centuries, this book has been woven into the life of all that is best and noblest in English history; that it has become the national epic of Britain, and is familiar to noble and simple, from John-o'-Groat's House to Land's End, as Dante and Tasso were once to the Italians; that it is written in the noblest and purest English, and abounds in exquisite beauties of mere literary form; and, finally, that it forbids the veriest hind who never left his village to be ignorant of the existence of other countries and other civilizations, and of a great past, stretching back to the farthest limits of the oldest nations in the world. By the study of what other book could children be so much humanized and made to feel that each figure in that vast historical procession fills, like themselves, but a momentary space in the interval between two eternities; and earns the blessings or the curses of all time, according to its effort to do good and hate evil, even as they also are earning their payment for their work?"

ANECDOTE OF DICKENS' READING,

A BOSTON lady of excellent good sense, but who was not so familiar with the great novelist's writings as she might have been, attended one of the readings, and afterwards described her experience as follows: "I went in and took a seat well in front. I was quite alone, and did not see a single familiar face around me. Presently a man rushed on the stage and cried, 'Marley was dead, to begin with!' It was so sudden and unexpected that the announcement quite upset me. I turned round to the people immediately behind me, and asked: 'What did that man say?' They, being of the *haute noblesse*, stared at me an instant, but answered not a word. 'For Heaven's sake,' said I, 'will you tell me what it means—who is dead?' But not a word did they vouch-

safe in response. Their dumbness intensified my wonder and mystification ; and a third time I besought them : 'Gracious goodness ! will none of you tell me what is the matter ? Somebody's dead—can't you speak ?' They gorgonized me from head to foot with a stony *Boston* stare, exchanged glances of derision, but opened not their mouths. I found I could get no information from that quarter, so I looked about me, and seeing no indications of general dismay, but everybody intently regarding the man on the stage, I presently came to the conclusion that he must be Dickens himself, and that there wasn't anybody dead, after all."

FLOATING ISLANDS.

GIPPSLAND is a Province of Victoria. It is bounded by the Australian Alps on all sides except on the South, which the sea washes far over one hundred miles. It may be called the Piedmont of Australia, rich fertile plains intersected by rivers flowing into a lake system extending all along the coast, and separated from the sea by a sandy narrow ridge, with one navigable opening. A local paper, the *Gippsland Times*, gives the following description of "floating islands" on the lakes :

"As one of the Gippsland Steam Navigation Company's steamers was recently crossing Lake Wellington, the man at the wheel suddenly observed land right in the track of the steamer, and apparently only a short distance from the straits separating Lakes Wellington and Victoria. He called the captain's attention to the strange sight, and on coming up close, the land was discovered to be a small island, about thirty yards in length by twenty broad. It was covered with a rich coating of luxuriant grass ; and small trees, tea tree, and bush shrubs, appeared to be growing in profusion. The only occupants of this remarkable apparition were a few pigs, feeding away contentedly and apparently enjoying their novel journey by water. A second island of the same description, but much smaller, was noticed a little farther on, but this had evidently detached itself from the larger piece of land, or most probably had been separated by the rooting depredations of the porkers.

"From what portion of the main land this floating island came, is

of course, matter of conjecture, but it is known that a portion of the soil at Marley Point, on the southern shore of Lake Wellington, became detached recently, and floated miles across the lake with some twenty or thirty head of pigs aboard. As long as the wind drove it in that direction, the island drifted toward M'Lennan's Straits, but a change of wind brought it back again, after a three days' trip, within a mile of the spot from which it had broken away. We believe it is the opinion of the district surveyor, Mr. Dawson, that the area of the Roseneath run, west of Lake Wellington, has been increased some twenty or thirty acres by the addition of drift islands.

A CALIFORNIA OBITUARY.

BODDLEPOPSTER is dead! The bare announcement will plunge the city into unspeakable gloom. The death of Boddlepopster was most untimely; he should have died twenty years ago. Probably no man of his day has exerted so peculiar an influence upon society as the deceased. Ever foremost in every good work out of which anything could be made, an unstinted dispenser of every species of charity that paid a commission to the disbursers, Mr. Boddlepopster was a model of generosity, and weighed at the time of his death one hundred and ninety odd pounds.

Originally born in Massachusetts, but for ten years a resident of California and partially bald, possessing a cosmopolitan nature that loved a York shilling as well, in proportion to its value, as a Mexican dollar, the subject of your memoir was one whom it was an honor to know, and whose close friendship was a luxury that only the affluent could afford. It shall ever be the writer's proudest boast that he enjoyed it at less than half the usual rates. Mr. B. was the founder of the new, famous Boddlepopster Institute, and for some years preceding his death suffered severely from a soft corn, which has probably done as much for agriculture as any similar concern in the foothills of our State.

In 1863 he was elected an honorary member of the Society for the Prevention of Humanity to Mongolians, and but for the loss of an eye in carrying out its principles, would have been one of the handsomest whites that ever resided among

us. There is little doubt that he might have aspired to any office in the gift of the people, so universal was the esteem in which he was held by those he voted for. In an evil moment he was induced to associate himself in business with the Rev. Albert Williams, and though he speedily withdrew from the firm, he was never wholly able to eradicate the disgrace from his constitution, and it finally carried him to his grave. His last words, as he was snuffed out, were characteristic of the man; he remarked: "Fetch me that catnip tea!" The catnip consolation arrived too late to be of any use; he had gone! Farewell, noble heart, pure soul, bright intellect! We shall meet again.

IS THE EARTH GROWING SMALLER?

AN argument was not long since presented by the geologist, Mr. Lesley, to the National Academy of Sciences, to the effect that the earth has sensibly shrunk since its original formation as a solid body. The intimation might be accepted with equanimity, but it seems that we are to understand the process is still going on. This, we must admit, is a much more serious affair. If the earth is to keep on getting smaller, and population to keep on getting larger, where is the thing to end? Clearly if the two processes are to continue, and that by appreciable gradations, the time can be predicted, with the certainty of an eclipse, when the world will no longer be able to support its inhabitants, and the systematic destruction of a part of mankind will become unavoidable in order to preserve the race.

It is plain that with this contingency before us, various modifications will naturally have to be made in social and political estimates. Such reducers of the population, for example, as Herod or Von Moltke, may appear, in the light of this new revelation of science, to be benefactors of their species in a sense previously undreamed of by humanitarians; Mr. Malthus may shine as a far more exalted person than before, and even the Oriental sacrifices of Juggernaut and the Suttee may become invested with charms that the

wildest of fanatics have hitherto failed to impute to them. We are accustomed to believe that our boundless Western prairies will sustain the most extraordinary number of people. Every now and then some ingenious statistician amuses himself by reckoning up the billions who will live and flourish out there in assignable periods. But if the national acres are to grow "small by degrees and beautifully less," while, with our mill-stream immigration, the census of each decade soars higher and higher, we repeat, where is this thing to end?

Let us hasten to reassure those who are solicitous for the welfare of posterity, and say that, like the possible event of its being struck by a comet, the chance of the earth's serious diminution in size is exceedingly remote. Planets tend to approach each other, no doubt, but the catastrophe need not in any case be gravely apprehended. Whether the gradual cooling of the earth, which we know to be going on, or the diminishing velocity of its rotation, are the sole causes of the imputed shrinkage, or not, the closest calculations arrive at so limited a change, in a prodigious term of years, that all fears on the subject can rationally be dismissed. Under any circumstances, on the basis of Laplace's demonstration, that the earth's rotation could not have been less than one-tenth of a day as its maximum of velocity, the then surface could have been, we are assured, only 130 per cent. larger than now; and, without going into the vexed question of the age of our planet, we may fairly take comfort in this assurance.

Yet another source of consolation is open to us. If the earth shrinks, who knows but that men will shrink too? We have been told on high authority that "there were giants in those days," and, on authority more recent and less trusty, that the famous effigy of Cardiff was one of them. It cannot be disputed, whatever the rapacity of the growing biped, that the consumption of food by mankind would vary in the ratio of their bulk. This, then, is a consoling reflection, even on the theory that the worst comes to the worst. Perhaps, after all, Swift only anticipated the future in his famous romance, while at the same time realizing the remote past; and, possibly, whereas our world was once peopled

by creatures like those of Brobdingnag, it may be occupied hereafter—when its diameter is fifty miles or so—by beings like the mannakins of Laputa. We advise our readers, however, to laugh at all such wild speculations whenever and wherever they may meet with them.—*N. Y. Times.*

MONT CENIS TUNNEL.

THE greatest engineering work of the great century of engineering has at last been accomplished. The Mont Cenis Tunnel is, perhaps, a more wonderful triumph of genius and perseverance than the Atlantic Telegraph or the Suez Canal. Its length is seven miles and three-fifths, it is twenty-six feet and a quarter in width, and nineteen feet eight inches in height, and will carry a double line of rails from France, under the Alps, to Italy. The tunnel, which is of course unfinished as yet, has been cut by atmospheric machinery through the solid rock, schist, limestone, and quartz, the air which moved the chisels escaping from its compression to supply the lungs of the workmen. The work has been fifteen years in progress, without reckoning the time spent in preliminary investigations; it has been carried on continuously from 1861 till now. The railway up the Sion valley will now, before long, carry its passengers straight through from Fourneaux to Bardonnèche, and it will be possible to go from Paris to Milan without climbing an Alpine pass, or even changing the railway carriage. So far as railway transit is concerned, there are therefore no more Alps. The great mountain chain has been finally removed. This immense work has been carried out under vast difficulties. There could be no shafts as in the short tunnels which pierce our little English hills, and all the *deb-ris* had to be carried back to the entrance. It was begun at both ends, and the workmen who thus started, seven miles apart, with a mountain chain between them, have met as accurately as though there had been but a hill to pierce. As a triumph of engineering skill, we must mark this work as one of the new wonders of the world.

TRIENNIALS.

A FEMALE friend of ours, prone to intermeddle with all knowledge, has been puzzling her brains for a fortnight over a Triennial Catalogue of some college or other, sent to her, as we suppose, by her young man. Having consulted "Watts on the Mind," the unabridged "Webster," and the "Young Lady's Assistant" in vain, she appeals to our editorial omniscience for light, which we graciously proceed to impart for the benefit of all similarly benighted persons, as followeth:

A Triennial Catalogue is so-called because it is published semi-occasionally; or, according to some etymologists, because that is the name of it. It is generally printed in what, for want of a distinctive term, is often styled Latin, in order that the information contained in it may be kept from the vulgar; though not seldom, as in the last Harvard Triennial, it ends, ignominiously enough, in such English as may be "understood of a common man." This is on account of the supply of catalogical Latin being insufficient for so thick a pamphlet. The catalogue keeps the judicious border line between the intelligible and the unintelligible, being gloriously hazy, and by consequence indefinitely learned and profound. If you know a man's name beforehand and the year in which he graduated, you will generally recognize it at once by turning to the proper page. It is not agreed whether William should be Latinized by *Gulielmus* or *Guilielmus* or *Wilhelmus*; but should you see either of these words in the catalogue, you can always guess that it means William. *Henricus* seems to be the Latin for Harvey when it doesn't stand for Henry, and *Carolus* always means Charles or Carl or Carolus or something of that sort. *Jacobus* may be Englished by *Jacobus* or *Jacob* for James. To change an English word into Latin you add *us* if you should happen to feel like it. The rule for changing Latin into English is to leave the *us* off, if it ought not to be on. Like most other rules, however, this last has exceptions. *Ludovicus*, e. g., is not thus cheaply shortened into *Lewis*, nor is *Hieronimus* thus easily transmogrified

into Jerome. The reason why this ending is not added to surnames as well as christian names is perhaps this, that only dubbeledees would then be able to read the catalogue, and of these only the few who do not write their own title "LL. D." *In* and *out* are correlated ideas, and hence probably it comes that "e cong," and "in cong," mean precisely the same thing—in triennial Latin.

Now, if after all the tenebrous illumination we have fuliginously projected upon this crepusculous subject any ignoramus should have the impertinence further to interrogate us, and inquire what mean those symbols, J.C.D., S.P.A. SS. LL. PP., Curs. Pub. Pref. Gen., Chin. Aul. Leg., and the like, we should be at liberty to respond only by a counter query, don't you know your abbreviations? We learned 'em when we were small. As to divulging the secret meanings wrapped up in such mystic formulas—never! We hope we know our duty better. Don't expect us to betray the cause of classical learning! Should we reveal this, the catalogue might just as well have been in the vulgar tongue. We will just hint, however, that the meaning of "Rerumpub. Fœd. Cur. Postulatt. Jurid." will very likely occur to you, if you have time to peruse the life and works of the eminent man to whose name they are attached. We will say frankly, however, that we suspect that "Neo-Caes." has something to do with new cider, or champagne.

ENGLISH SYNONYMS.

THE copiousness of the English tongue, as well as the difficulty of acquiring the ability to use its immense vocabulary correctly, is well exhibited in the following array of synonymous words; which, if not new, are yet a capital illustration of the nice distinctions, which differ from so many of our vocables. It is no wonder that we slip occasionally, even the wariest of us!

A little girl was looking at the picture of a number of ships, when she exclaimed, "See, what a *flock* of ships!"

We corrected her by saying that a flock of ships is called a *fleet*, and that a fleet of sheep is called a *flock*.

And here we may add for the benefit of the foreigner who is mastering the intricacies of our language in respect to nouns of multitude, that a flock of girls is called a *bevy*, that a bevy of wolves is called a *pack*, and a pack of thieves is called a *gang*, and a gang of angels is called a *host*, and a host of porpoises is called a *shoal*, and a shoal of buffaloes is called a *herd*, and a herd of children is called a *troop*, and a troop of partridges is called a *covey*, and a covey of beauties is called a *galaxy*, and a galaxy of ruffians is called a *horde*, and a horde of rubbish is called a *heap*, and a heap of oxen is called a *drove*, and a drove of blackguards is called a *mob*, and a mob of whales is called a *school*, and a school of worshipers is called a *congregation*, and a congregation of engineers is called a *corps*, and a corps of robbers is called a *band*, and a band of locusts is called a *swarm*, and a swarm of people is called a *crowd*, and a crowd of gentlefolks is called the *élite*, and the élite of the city's thieves and rascals are called the *roughs*, and the miscellaneous crowd of the city folks is called the *community*, or the *public*, according as they are spoken of by the religious *community* or the secular *public*.

EDUCATIONAL INTELLIGENCE.

NEW YORK.—Concerning what was accomplished by the NEW YORK STATE TEACHERS' ASSOCIATION, at its recent session in Lockport, Mr. F. B. Perkins, the *Tribune's* able correspondent, discourses as follows :

The female teachers were as three or four to one male, at least. The ladies were some of them beautiful, many lovely, and every one bright and intelligent. The men were seldom handsome, but on an average of fine temperament, large brain, excellent moral and spiritual tone ; and all were interested in the work. A cleaner-souled assemblage, whether of clergy or laity, perhaps never met, because the ideal teacher needs all a clergyman's virtues plus virtues more. He or she should contain a whole missionary minus

his weak stomach, and a whole Hercules minus his weak morals. There are few such.

The papers and addresses were significant and meritorious, on the whole. Some speakers labored under the disadvantage of bad habits or no habits of oratory. Mixtures of metaphor appeared here and there; as where a speaker in two consecutive sentences asserted that if a moral earthquake was cut it would bleed. But the defects were trifling. "Papers are limited to fifteen and lectures to thirty minutes," said the printed programme, and President Steele resolutely though delicately decapitated every man at the moment, unless a vote of the Association extended the time.

But what did the Association do? They listened and appreciated and were interested. It is not every audience of 500 or 600 professionals and as many citizens of the vicinage who are capable of doing that; but this audience did not miss a point nor misjudge an utterance. Yet one cannot help wishing they could have seen their way clear to some one strong appeal in favor of some one desirable educational reform or improvement or experiment. Suppose they had passed such a resolution as this:

Resolved, That our members are requested to observe and experiment during the coming year upon the proper extent and method of teaching the botany and natural history of our own State, by oral instruction, and from the objects themselves; and to report their conclusions at the next meeting.

Would that not have been sure to give a decided impulse to these extremely important and little taught departments of real knowledge? Such a direct summons would stimulate to actual effort more than even the very intelligent and justly conceive^d papers which were read on the subject.

No full role of the whole attendance of teachers was made, the only list being the Treasurer's entries of members paying their dues.

A committee was appointed to prepare for a uniform and proper mode of collecting educational statistics throughout the United States. Doubtless, if a really good scheme is offered, the Federal Educational Bureau could be brought to adopt it. But neither body, nor anybody, can obtain these statistics without either pay or else penalty. Those which the United States obtains by using both are sufficiently faulty. There were no details in the exercises of processes of oral instruction in the form of specimen series of question and answer, or exchange of thought, between teacher and pupil, although the most usual want of teaching is a mastery of these ultimate details of communicating knowledge and of training in correct thought. The doings of the Association, if not as efficiently practical as is to be

wished, were yet very creditably so. It is a living body, wide awake, perfectly healthy in tone and tendency, and as the discussions on Object Teaching, on Corporal Punishment, and on Classical and Real Instruction showed, conservatively progressive on the educational questions of the day. Not one lady took part in any debate. Miss Parsons's paper, however, entitled "Hints on Teaching," was one of the best of the session, both in matter and manner. Miss Cleveland's poem contained many smart things, but its fate before the audience added one more evidence that the female larynx is at present not adapted to fill large rooms. Miss Cleveland was not heard at all by a quarter of those present.

The citizens of Lockport were very hospitable to their visitors, the ladies being boarded and lodged gratis, and the gentlemen at very reasonable rates. The Saratoga people are smarter. They invite the Association to meet there next year to pay not over \$2 per human being per day for the privilege, and to buy their own Congress water beside.

NEW HAMPSHIRE.—KIMBALL UNION ACADEMY (Meriden), graduated a class of thirty at its anniversary, June 29th—twenty-three young men and seven young women. This school, since its incorporation in 1813, has taken rank among the first classical schools in the country. For thirty-six years it has been under the direction of one man, Cyrus S. Richards, LL. D. Failing health has at last compelled Dr. R. to hand in his resignation, greatly to the regret of all connected with the institution, and the Rev. J. E. Goodrich of Burlington, Vt., has been appointed to the vacant post. Mr. G. was lately Superintendent of the public schools of Burlington. An effort is to be made at once to increase the funds of the school, by an additional \$100,000.

RHODE ISLAND.—The Twenty-sixth Annual Report of the Commissioner of public schools, gives the following statistics: number of districts, 412; number of summer schools, 583; winter schools, 635; number of teachers, winter, 711, summer, 651; average length of school year, 34 weeks; average wages of teachers per month, summer \$31.14, winter, \$35.86; number of pupils registered, summer, 25,567, winter, 28,364; average attendance, summer, 20,048, winter, 22,444; total expenditures for school purposes, \$529,054.08; State tax on each, \$1; for public schools, five cents; amount appropriated by the State for Normal instruction, \$1,500.

Since the publication of the twenty-fifth Annual Report, a State Board of Education has been established. Its first report is now issued. The work done has been mostly preparatory, but is sufficient to indicate the usefulness of the Board.

MICHIGAN.—In September, 1870, the Annual School Meeting of White Pigeon, voted \$15,000 to build a new school-house. At a subsequent special meeting held in December last, a motion prevailed rescinding the vote of the annual meeting, and also a vote that the sum assessed to be raised on the tax-roll of 1870 should be refunded to the persons against whom it had been assessed. Suit was then brought by a tax-payer for the amount of the tax assessed against him, the question involved being whether the district had a lawful right to vote to refund a tax after the same had been spread upon the tax-roll. The opinions of the Attorney-General and of the Superintendent of Public Instruction are both adverse to the claim of the plaintiff. In deciding a case sent up from Charlevoix county, the Superintendent holds that a district has legal power to vote a tax of \$1,000 for a log school-house, under the amendments of 1867; but adds: "A log school-house seemed to be a kind of necessary evil, and under the circumstances the Legislature were induced to make the change. I should not encourage their erection."

IDAHO TERRITORY.—The Second Biennial Report of the Superintendent, D. Cram, for the years 1869 and 1870, shows the whole number of children in the different counties where public schools have been organized to be 888, of whom only 427 have attended school. The total expenses were \$9,208, of which \$7,912 were paid to teachers. Public sentiment is modifying in favor of a better system for the management of the public schools. Much has been accomplished during the past two years, but there is still room for improvement. The Superintendent is laboring earnestly in behalf of reform, and will doubtless present a better statement in his next Report.

BATTLE CREEK, MICH.—The working of the schools during the past year, can be understood by examination of

the following figures: number of different pupils enrolled, 1,510; average number belonging, 986; average daily attendance, 933; per cent. of attendance, 95. The central school building lately erected is probably the most elegant, convenient and completely appointed school building in the State.

ST. LOUIS, MO.—The Sixteenth Annual Report of the St. Louis schools shows, that the total number of teachers is 466; number of pupils, 26,811; total expenses, \$634,122, of which \$313,407 were for teachers' salaries; number of school-houses, 48, of which 38 are owned by the Board of Education; total value of school property, \$1,730,146.

POTTSVILLE, PENN.—The school statistics as prepared by the Superintendent, exhibit the following facts:

1. That of 4,427 children in the borough between the ages of 6 and 21, 2,214, or exactly one more than one half, are out of school. 2. That of 2,080 children between the ages of 7 and 13, 401, or nearly one-fifth, are out of school. 3. That 336 males and 530 females above the age of 12 years, out of a population of 12,381, cannot read and write.

These facts point out, in the most forcible manner, a new field for educational effort. They show that multitudes of children in this flourishing town, in the midst of school-houses and churches, are growing up in ignorance, and that many persons are attempting to discharge the duties of citizens who know little about them. It is probable that in many other places, a similar state of affairs exists.

QUEBEC.—The Report of the Minister of Public Instruction for the year 1869 and part of 1870, has been received. The total number of institutions of all kinds, including academies, colleges, etc., is 3,901; number of pupils, 213,653; number of teachers, male, 1,096, females, 3,896; number of public libraries, 186; number of volumes, 93,519. The general statistics show an increase over the preceding year of 1,660 in the number of pupils, and of \$102,038 in school contributions. The total amount levied for school purposes was \$894,857.

ICELAND.—The educational condition of Iceland is

somewhat anomalous. It would be difficult to find on the island a boy or girl of ten years of age, who is not able to read well: yet, for the 70,000 inhabitants of Iceland, there are only two primary schools and one high school. Nevertheless, primary education is in a manner compulsory, marriage being prohibited unless the bride is able to read. This law, however, seldom or never needs to be enforced, for the good reason that there are no delinquents. As a rule mothers teach their children to read as early as their third or fourth year. The primary rules of arithmetic are almost as generally known as letters. Nearly all the men, and the majority of the women, are also able to write. The thirst for knowledge for its own sake is universal, reading and study forming the chief recreation of the people during the long winter evenings: but there is a serious lack of the practical in the studies pursued. History, genealogies, theology, and even philology is studied by the commonest peasants, while chemistry and the other practical sciences are all but unknown. The result is their learning does not raise them in the least above the rude and primitive style of living inherited from the earliest ages.

CURRENT PUBLICATIONS.

THERE seems to be a growing demand for "Short Courses." We were recently informed by a teacher in a school of some celebrity that they contrived to despatch both Astronomy and Physiology by giving a half term, or some six or seven weeks, to each! If it is possible to give but a single term to Astronomy, the work named below¹ will be found a good one; though we should advise extending the time and taking up a fuller treatise, as, for instance, the same author's "New Manual," issued in 1867, of which the present work is in large part an abridgement. There are problems for both globes, and the diagrams and illustrations are well chosen. A classical scholar might ob-

¹ A SHORT COURSE IN ASTRONOMY and the Use of the Globes. By Henry Kiddle, A.M. New York: Ivison, Blakeman, Taylor & Co., 1871. 16mo., 190 pp.

ject to deriving *Crater* from the *Latin*, or the latter syllable of *spheroid* from the "Greek *oid*, like," as Mr. Kiddle does in his Index of Astronomical Terms. Mechanically, the book is a credit to its publishers.

We have examined Norton's *Natural Philosophy*² with some care, and are prepared to say that we should choose it as a text-book for high schools and academies in preference to any other American treatise with which we are acquainted. It is comprehensive, well arranged, abundantly illustrated, and fully up to the present state of the sciences with which it deals. Fourteen pages of practical problems in mechanics are added, and reference to all matters in the volume is made easy by a full index. Teachers of Physics will find the volume of large service to them, even if it should be found to be too extended for use in their classes. It cannot be dispatched in "fourteen weeks," but to our mind this is very far from being an objection to it.

Mr. Leighton's *Greek Lessons*³ is designed to accompany Goodwin's Greek Grammar, of which we had something to say in our March number. The Reader, by Prof. Goodwin, will be issued in ample time for use in the Fall Term. This series is destined to be extensively adopted. It must commend itself to all who are not wedded to the old methods and manuals. It makes us sigh to think that our youth was trained in Greek according to Sophocles, and not according to Goodwin. How much Goodwin might have saved us, and done for us, if he had only made his Grammar twenty years earlier!

MESSRS. HARPER & BROTHERS have published a large, handsome, profusely illustrated volume entitled "History of Frederick the Second, called Frederick the Great," by John S. C. Abbott. It is in large readable type, and will prove a good accession to the school library.—"Reindeer, Dogs and Snow-Shoes; a journal of Siberian travel and explorations made in the years 1865, 1866, and 1867," by

² THE ELEMENTS OF NATURAL PHILOSOPHY. By Sidney A. Norton, A.M. Three hundred and fifty illustrations. Cincinnati: Wilson, Hinkle & Co. 12mo., pp. 468.

³ GREEK LESSONS adapted to Goodwin's Greek Grammar, and intended as an Introduction to his Greek Reader. By R. F. Leighton, A.M., Master of the Melrose High School. Boston: Ginn Brothers, 1871.

Richard J. Bush, late of the Russo-American Telegraph Expedition. It has many illustrations.—“The Domestic Life of Thomas Jefferson,” compiled from family letters and reminiscences, by his great-granddaughter, Sarah N. Randolph.—“The Student’s Elements of Geology,” by Sir Charles Lyell, Bart., F.R.S. The book has some six hundred illustrations.—“A Latin Grammar for Beginners,” by William Henry Waddell, of the University of Georgia.—“Little Sunshine’s Holiday; a picture from life,” by the author of “John Halifax, Gentleman.” In this connection the publishers announce that they at short intervals, by the same author, will publish a series of books specially prepared for girls. These volumes will be well illustrated, and will be admirably suited for school presents.

MESSRS. HOLT & WILLIAMS have published the “Oral Method with German,” by Jean Gustave Keetels.—Also a second edition, revised, of No. II. of the “Student’s Collection of Classic French Plays, *Athalie*, a tragedy by J. Racine.” It is edited, with a complete Commentary for the use of Students, by Ed. S. Joynes.

WOOLWORTH, AINSWORTH & Co., “The Federal Government; its officers and their duties,” by Ransom & Gillet. 444 pages.

A. S. BARNES & Co., the first of a series of five, entitled “Worman’s German Copy-Books,” edited by H. E. Hayes. This series is designed for the use of pupils of German-American schools, as well as for students of the German language. It is intended to give the former an easy, rapid and progressive method of learning to write, and the latter a graceful and flowing style of the current German handwriting.

IVISON, BLAKEMAN, TAYLOR & Co., “A Condensed School History of the United States, constructed for definite results in recitation, and containing a new method of topical reviews,” by William Swinton. The book is well supplied with maps and illustrations; it is a model as to typography, and is just the right size for a school text-book on this subject. The fame of the author renders comment on the matter unnecessary.

MISCELLANEA.

PROF. WM. S. TYLER is now preparing a full and careful history of Amherst College, beginning with the first project for the establishment of a college in Hampshire County, with sketches of its founders, trustees, and teachers.

MR. TRÜBNER has inserted in the *Literary Record* a very curious list of the school reports of the various States of the Union, with a list of educational periodicals.

A SECOND series of *Short Studies on Great Subjects*, by James Anthony Froude, the historian, has just appeared in London.

FROUDE says, "Thought is but a poor business compared to action."

WHILE ten men watch for chances, one man makes chances; while ten men wait for something to turn up, one turns something up; so while ten fail, one succeeds and is called a man of luck, the favorite of fortune. There is no luck like pluck, and fortune most favors those who are most indifferent to fortune.

IT is said that Choate had an astonishing command of language, and his brain teemed with a wealth of diction truly marvelous. When Judge Shaw first heard that there was a fresh edition of Worcester's Dictionary, containing 2,500 new words, he exclaimed, "For Heaven's sake, don't let Choate get hold of it!"

A CANDIDATE for the position of school teacher in Alabama recently replied to a question by one of the examiners, "Do you think the world is round or flat?" by saying, "Well, some people think one way and some another; and I'll teach round or flat, just as the parents please."

A CONNECTICUT school teacher who wanted to make an impression on two of his boys who had been fighting, proposed that they should be tried by a jury of their fellows. The proposition was accepted, and the charges proved, but the pedagogue, who had constituted himself judge, was a little taken back, when the jury rendered a verdict of "not guilty," without leaving their seats.

A VERY skillful and successful teacher of children is wont to express her indebtedness for much of her success to the following rules, which were first put into this shape by Jacob Abbot:

"When you consent, consent cordially." "When you refuse, refuse finally." "When you punish, punish good naturedly." "Commend often." "Never scold."

Some bulky books contain less practical value than these short sentences.

OUR own day has witnessed the first exact measurement of the distance of the nearest fixed star, which is twenty-one millions of millions of miles. A learned calculator has shown, that in the space around our solar system there is room in one dimension, or one straight line, for twelve thousand solar systems; in two dimensions, or in one plane, there is room for one hundred and thirty millions of solar systems, and in an actual sidereal space of three dimensions there is room for one and a half million millions of solar systems the size of our own. Such are the blanks in the scheme; how fearful the thought of such physical immensity!—*Dr. Alexander.*